



## **Innovative Technology Associates**

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Innovative Technology Associates (ITA) is a supplier of specialized software, complex processing algorithms, and advanced systems in support of defense applications. ITA processes allow rapid insertion of COTS technologies, which has become a hallmark of ITA.

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**SBIR Investment: \$850K**

**Non-SBIR Investment: \$1,257K**

# **Broadband Signature Information Identification and Extraction**



## **About the Technology**

Broadband feature extractors were developed to assess the practicality of using high-order spectral analysis as discriminating signature components. An algorithm was developed to measure the non-Gaussian characteristics of a broadband signature. These properties discriminate man-made noise from natural sounds. A contact follower was devised to “scissor,” beam formed data and produce a continuous signature of each contact as it moves in azimuth relative to the sonar array. The broadband feature extractors operate directly on the signature of each contact and develop a continuous history of the features of each contact. The extractor recognizes the characteristics of the contact and by comparing the signal with the history base presents information to the sonar technician.

## **Benefits to SPAWAR and other DoD Programs**

The broadband feature extractors (BFE) developed by Innovative Technology offers superior performance for detecting and classifying undersea contacts compared with the features that were previously used for contact detection. This has resulted in a system that is capable of recognizing contacts that pose a threat and offers a high discrimination from non-threat contacts.

## **Why BFE Improves Technology**

- Improved detection and classification of undersea contacts through unique algorithm and broadband spectral analysis.
- Uses color contact broadband encoding information to make operator classification simpler.
- Aids the operator in the assessment of the tactical situation by presenting likely threat information about the targeted contact.

## **Military and Commercial Significance**

- Innovative has received a Phase III award to incorporate the Broadband Signature product line into the SQQ-89A(V)15 Torpedo Recognition and Alerting Functional Segment (TRAFS).
- Can be adapted to commercial applications such as X-rays, magnetic resonance images (MRIs), and astronomy.

